

## Web

Definitions of **singular value decomposition** on the Web:

- Any  $m \times n$  matrix  $X$  may be decomposed into three matrices  $U$ ,  $D$ ,  $V$  (with dimensions  $m \times m$ ,  $m \times n$ , and  $n \times n$ , respectively) in the form:  $X = UDV^T$ , where the columns of  $U$  are orthogonal,  $D$  is a diagonal matrix of singular values, and the columns of  $V$  are orthogonal. The singular value decomposition of a variance-covariance matrix  $S$  is written as  $S = E\Lambda E^T$ , where  $L$  is the diagonal matrix of eigenvalues and  $E$  the matrix of eigenvectors.  
[life.bio.sunysb.edu/morph/glossary/gloss2.html](http://life.bio.sunysb.edu/morph/glossary/gloss2.html)
- affine transformation  
[www.cs.brown.edu/research/ai/dynamics/tutorial/Documents/Vocabulary.html](http://www.cs.brown.edu/research/ai/dynamics/tutorial/Documents/Vocabulary.html)
- In linear algebra the singular value decomposition (SVD) is an important factorization of a rectangular real or complex matrix, with several applications in signal processing and statistics. This matrix decomposition is analogous to the diagonalization of symmetric or Hermitian square matrices using a basis of eigenvectors given by the spectral theorem.  
[en.wikipedia.org/wiki/Singular\\_value\\_decomposition](http://en.wikipedia.org/wiki/Singular_value_decomposition)

Related phrases: [generalized singular value decomposition](#)

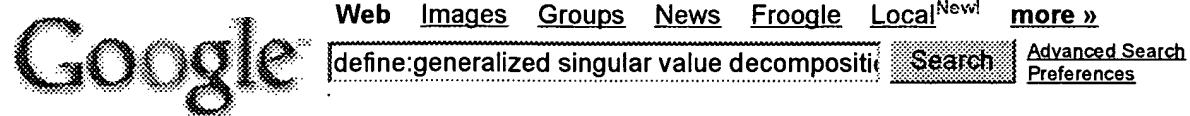
Find definitions of **singular value decomposition** in: [English](#) [German](#) [all languages](#)

[define: singular value decomposition](#)

[Language Tools](#) | [Search Tips](#) | [Dissatisfied? Help us improve](#)

[Google Home](#) - [Advertising Programs](#) - [Business Solutions](#) - [About Google](#)

©2005 Google



## Web

Definitions of **generalized singular value decomposition** on the Web:

- In linear algebra the generalized singular value decomposition ('GSVD) is a matrix decomposition more general than the singular value decomposition. It is used to study the conditioning and regularization of linear systems with respect to quadratic semi-norms.

[en.wikipedia.org/wiki/Generalized\\_singular\\_value\\_decomposition](http://en.wikipedia.org/wiki/Generalized_singular_value_decomposition)

define:generalized singular value de

[Language Tools](#) | [Search Tips](#) | [Dissatisfied? Help us improve](#)

[Google Home](#) - [Advertising Programs](#) - [Business Solutions](#) - [About Google](#)

©2005 Google